UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
VIDA, MELANIE M

ART UNIT	PAPER NUMBER
2626	3

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _18 June 2001_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-27_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1,2,4-7,11,12,15,16,18,19,21,22 and 24-27_ is/are rejected.

7)☒ Claim(s) _3, 8-10, 13-14, 17, 23_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _18 June 2001_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
since a specific reference was included in the first sentence of the specification or in an Application Data Sheet.
37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific
reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _2_ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statements (IDS) submitted on Jun 18, 2001 and been

considered by the examiner and is attached to this office action.

Drawings

2.   The drawings are objected to under 37 CFR 1.83(a) because they fail to distinctly show

which diagram represents h_2^c and h_3^c as described in the specification, (pg 2, lines 8-24).

The drawings are objected to under 37 CFR 1.83(a) because they fail to show the

"capture module (103)" as described in the specification, (pg. 6, line 32).

Any structural detail that is essential for a proper understanding of the disclosed

invention should be shown in the drawing. MPEP § 608.02(d).

3.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they

include the following reference sign(s) not mentioned in the description:

It appears that the final image (130), as shown in figure 4, was not described in the

specification, (pg. 7, lines 3-13).

It appears that the start (150), as shown in figure 7, was not mentioned in the

specification, (pg. 8, lines 12 through pg. 10).

4.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because

reference characters "$p < lg_2$" and "$1 > p$" have both been used to designate block 134 in figure 5,

(pg. 7, lines17-19). A proposed drawing correction or corrected drawings are required in reply to

the Office action to avoid abandonment of the application. The objection to the drawings will

not be held in abeyance.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the following limitations:

"E(u)" in line 3. It is unclear if E(u) corresponds to the space varying algorithm, or the the variational problem, (lines 1-2).
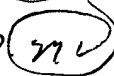
"theta" in line 4.

"phi" in line 7.

There is insufficient antecedent basis for this limitation in the claim.

Claims 4, and 15 recite the following limitations:

[k, j], in lines 4, and 6.

"$u^{final}[k, j]$" in line 4, does it correspond to the final image?

"u_{small} in line 4, does it correspond to a small image?

"$u_{high}[k, j]$ in line 4, does it correspond to a large image?

Claim 5 recites the following limitations:

"ΔD" in line 3.

"g" in line 3.

"phi" in line 3.

Claim 6 recites the following limitations:

"n" in line 3.

"i, j" in line 3.

"u_{ij}" in line 3.

"u_{ij}" in line 3.

"g_x" in line 8.

"g_y" in line 8.

Claims 7, and 16 recite the following limitations:

"E(u)" in line 3. Does this equation correspond to the space varying algorithm, or

the variational problem (lines 1-2).

"Ω" in line 3.

"D" in line 3.

"α" in line 3.

"∇D" in line 3.

Claim 18 recites the following limitations:

"LAP" in line 8.

"K_{LAP}" in line 8.

"$(u-u_0)$" in line 6.

Claim 21 recites the following limitations:

"μ_{NSD}" in line 3.

"NSD" in line 3.

"α_k" in line 3.

"j" in line 4.

"L" in line 4.

Claim 22 recites the following limitations:

"$Proj_\theta$" in line 4.

"L_J" in line 4.

Claim 24 recites the following limitation:

"PYR" in line 3.

Claim 25 recites the following limitation:

"$E(u)$" in line 4. Does this correspond to the variation problem or the space

varying algorithm, (lines 1-3).

Claim 26 recites the following limitation:

"α" in line 4.

Claim 27 recites the following limitation"

"x" in line 2.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
patent by another filed in the United States before the invention by the applicant for patent, except that an
international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
subsection of an application filed in the United States only if the international application designated the United
States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 11, 12, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by

Balasubramanian et al. (US 6,646,762), hereinafter, Balasubramanian.

Regarding, **claim 1, 11, 12, and 19,** Balasubramanian teaches a method of gamut

mapping from (G1), to (G2) for printing correction (112), as shown in figures 5-6, in steps (110)

with the gamut mapping component (24), which reads on "a method for gamut mapping", (col. 4,

lines 20-65). Further, it is illustrated that the gamut mapping from (G1) to gamut mapping (G2)

involves a spatial filter (104) on a local area, which reads on "a space-varying algorithm", (col.

5, lines 43-46). The method has a source for an original image (10), which reads on "receiving

the input image", (col. 4, lines 34-36). The input data is output from the gamut mapping function

(G1) to Y', C1', and C2', which reads on "converting the color representations of an image pixel

set to produce a corresponding electrical values set", (col. 5, lines 33-39). The spatial filter (104)

is applied to "n x m" block of local values in ΔY, to produce the output values, $\Delta Y'$, which reads

on "applying the space varying algorithm to the electrical values set to produce a color mapped

value set", (col. 5, lines 43-46). The colors defined by Y'', C1', C2', are then converted with a

second gamut mapping function, (110) for the resulting signals, which reads on "reconverting the color-mapped set to an output image", (col. 5, lines 48-51).

Regarding **claims 11, and 19,** please refer to the corresponding rejection in claim 1.

Regarding, **claim 12,** please refer to the corresponding rejection in claim 1, and further where Balasubramanian inherently teaches a computer memory device, as evidenced in the IPU (20) that embodies a personal computer or workstation for driving a printer, that uses the memory devices ROM and RAM to store the programs, (col. 4, lines 40-45).

Allowable Subject Matter

7.   **Claims 2-10, 13-18, and 20-26** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. **Claims 2-10, 13-18, and 20-26** are allowable because the prior art does not teach or suggest all the features of the space-varying algorithm, recited therein.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Levy et al. US 2003/0174885, variational models for spatially dependent gamut mapping.

Levy et al. US 2003/0174884, the spatially dependent gamut mapping technique.

Kimmel et al. US 2003/0030826 A1, the space varying algorithm.

Kimmel et al. US 2003/0012448 A1, a system and method for image enhancement by compensation of the illumination and dynamic range.

Ito et al. US 6,437,792, the color difference formula, (4-8), (4-9).

Deering, US 2002/0122044 A1, a color correction system and method that uses the Gaussian filter and convolution with images. (par. 0012, 0189).

Lubin et al. US 6,360,022, a method and apparatus for accessing the visibility of differences between two signal sequences using a perceptual metric generator.

JP 10-191090, a color conversion table using linear interpolation by a Lagrange's interpolation formula.

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie M Vida whose telephone number is (703) 306-4220. The examiner can normally be reached on 8:30 am 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly A Williams can be reached on (703) 305-4863. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-6743.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Melanie M Vida
Examiner
Art Unit 2626

MMV

November 17, 2003

KIMBERLY WILLIAMS
SUPERVISORY PATENT EXAMINER